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How sending e-mails compares with carbon emission of car use

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Digital natives can reduce their carbon footprint by being conscious about Internet usage

Ever wondered how your e-mails may contribute to your personal carbon footprint?

According to estimates published in Phys.org, sending a short e-mail adds about 4g of CO2 equivalent (gCO2e) to the atmosphere (an e-mail with a long attachment has a tenfold carbon footprint, that is 50 gCO2e.

The carbon output of 65 e-mails is comparable with driving a mid-sized sedan passenger (petrol) car for about 1km. After five workdays, your 325 e-mails would have pumped out at least 1.3kg of CO2 into the atmosphere. Over a year, your e-mails would have contributed quite drastically to the global greenhouse effect and indirectly to global warming.

This is indeed An Inconvenient Truth, as explained in the 2006 Oscar-winning environmental documentary film by Davis Guggenheim, featuring former US vice-president Al Gore, who triggered a global movement against the climate crisis.

As citizens of a "smart nation" undergoing digital transformation, and as consumers of digital products and services, are we knowledgeable about what is at stake?

According to Singapore's National Climate Change Secretariat, Singapore's "business-as-usual emissions" are estimated to amount to 77.2 million tonnes (MT) in 2020 (Singapore contributes around 0.11 per cent of global emissions).

Climate change affects Singapore through rising annual mean temperatures - from 26.6 deg C in 1972 to 27.7 deg C in 2014. In addition, there is an increased mean sea level in the Strait of Singapore at the rate of 1.2mm to 1.7mm per year between 1975 and 2009, and an uptrend in annual average rainfall from 2,192mm in 1980 to 2,727mm in 2014. Not surprisingly, residents have noticed increased episodes of flash floods, all exemplifying some of the effects of climate change on this island nation.

From next year, the Ministry of Finance will introduce a new carbon tax to steer Singapore's transformation towards a low-carbon economy.

Act now to reduce the greenhouse effect by changing your e-mail habits and unsubscribing from all the financial market news that you do not read, and skip that non-essential Internet search.

Facilities emitting 25,000 tonnes of CO2e (tCO2e) or more of greenhouse gas emissions annually will be taxed at $5/tCO2e (beyond 2023, the tax may be doubled to $10/tCO2e).

The first carbon tax payment will be due in 2020, based on emissions next year. It will be interesting to see how effective the new policy will be in convincing private and public organisations that digital products are neither "carbon-light" nor "low-impact", and that we are all accountable for the emissions.

Whether new carbon cost-related financial regulations or a formal ISO 14064 Carbon Emission Reduction Validation programme will effectively nudge stakeholders to adopt greener energy sources remains to be seen.

An interesting challenge for educators is to create buy-in for the concept of digital sustainability among a generation of digital natives who contribute quite significantly to the problem of "Internet pollution".

Sending short messages, using photo-and video-sharing social networking services and searching the Internet requires electrical energy, which, in turn, causes a negative environmental impact.

According to BBC's Science Focus, the Internet is responsible for roughly one billion tonnes of greenhouse gases a year, or around 2 per cent of world emissions. Last year, Facebook (which has made a long-term commitment to be 100 per cent renewably powered), with a total of 2.2 billion social network users, registered 979,000 tonnes of carbon dioxide equivalent (MTCO2e).

What about streaming video?

Netflix itself said in 2014 that in delivering its service, its average customer had a carbon footprint of 300g per year. It has since made its service carbon neutral. However, this does not factor in the power used by the devices when content is consumed. The carbon challenge of social media will no doubt further intensify with the rising number of users, which is expected to exceed three billion by 2021.

Powered by big data centres that house computing, server and networking equipment, the rapidly increasing volume of digital transactions is arguably not sustainable, given their large carbon footprint.

While there is a trend towards reducing the energy usage in data centres and evaluating their energy sources in favour of greener cloud-based hosting solutions, it requires more thinking to find ways to nudge individuals into concrete behavioural change to reduce carbon emissions as much as possible, and offset as much carbon pollution as they emit.

One classroom approach is to use social norms to alter behaviour. Research has shown that informing people about their own energy use, as compared with nearby residents (and how they can decrease energy consumption), can lead to significant long-term reduction in energy consumption to more sustainable levels. Imagine the behavioural and public relations impact if we begin to rank organisations by their carbon emissions.

Another educational strategy is to use a carbon footprint calculator to estimate one's own greenhouse gas-emission level, in comparison with one's peers. Better still if that can calculate emissions generated as a result of activities like watching YouTube, driving mum's car to school or using Scoot for a weekend trip to Bali, and if it can tell users what it takes in terms of tree-planting or financial contributions to carbon-offsetting foundations to effectively offset them.

Yet another tactic to obtain buy-in is to refer back to the early (and visibly very successful) tree-planting initiative of Singapore's founding Prime Minister, the late Mr Lee Kuan Yew, which began with him planting a mempat tree in 1963 that catalysed Singapore into a "City in a Garden".

Any discussion about digital sustainability must go beyond meeting the digital needs of the contemporary generation. In order not to compromise the ability of future generations to meet their own needs, we need to act now and reduce the greenhouse effect which is warming Planet Earth.

Start small - change your e-mail habits by unsubscribing from all the financial market news that you do not read, and skip that non-essential Internet search (0.2 gCO2e on an energy-efficient laptop and 4.5 gCO2e on an old desktop computer).

Or be bolder - calculate your personal carbon footprint and plant a tree. A poplar tree, for example, can absorb about 300kg of CO2 and offset 1,000 air miles.

As the proverb goes: The best time to plant a tree was 20 years ago. The second best time is now.

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